

Renewable Energy Programs and Rebates

**Southern California Renewable Energy Expo
August 2-3, 2003**

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Emerging Renewables Program**

California Energy Commission



Outline

Funding Source & Legislation

Renewable Portfolio Standard

Renewable Energy Program

- Purpose
- Funding
- Results so far

Emerging Renewables Program

- Some details

Self Generation Program



System Benefits Charge in California

SBC - maintains investments traditionally allocated by state utilities before electricity restructuring in 1996.

◆ About 3% of electric bills statewide - \$645 million per year to support:

◆ **Renewable energy**

◆ Research, development and demonstration (RD&D)

◆ Energy efficiency

◆ Energy services for low-income households

Energy Commission

Public Utilities Commission



Legislation

Senate Bill 90/Assembly Bill 1890 - Created Renewable Energy Program and authorized the Energy Commission to administer \$540 million program from 1998-2002

Senate Bill 1038 - Extended Renewable Energy Program until 2006 and authorized the Energy Commission to administer \$135 million per year

Senate Bill 1078 - Renewables Portfolio Standard (RPS) Requires California utilities to increase their procurement of renewables by 1% per year until they reach 20% by 2017



RPS Implementation

Energy Commission's Roles

- Certify facilities as “eligible renewable energy resources”
- Establish criteria for “incremental” output from existing geothermal facilities
- Design and implement an accounting system to verify retail sellers’ compliance with the RPS

Verify that generation is counted only once in this or any other state



RPS Implementation

Energy Commission's Roles (Cont'd)

- Consult with the CA Public Utilities Commission in:
 - Developing a process for calculating market prices
 - Developing other implementation rules
 - Participating in proceedings on renewable development to coordinate efforts
- Develop comprehensive renewable electricity generation resource plan by December 1, 2003



Renewable Energy Program 1998 - 2002

PURPOSE

Foster the growth of the renewable energy market with:

Production incentives for existing and new renewable electricity generation

Incentives to customers who purchase renewable electricity

Consumer education

Rebates to install on-site distributed generation systems

\$135 million per year in funding



Renewable Energy Program

\$135 million annually for Renewable Energy support to:

Maximize the influence of market incentives and minimize administrative requirements

Maintain the benefits and diversity of the renewables industry

Facilitate a self-sustaining consumer-driven renewables market

Encourage the market-based development of new and emerging renewable industries

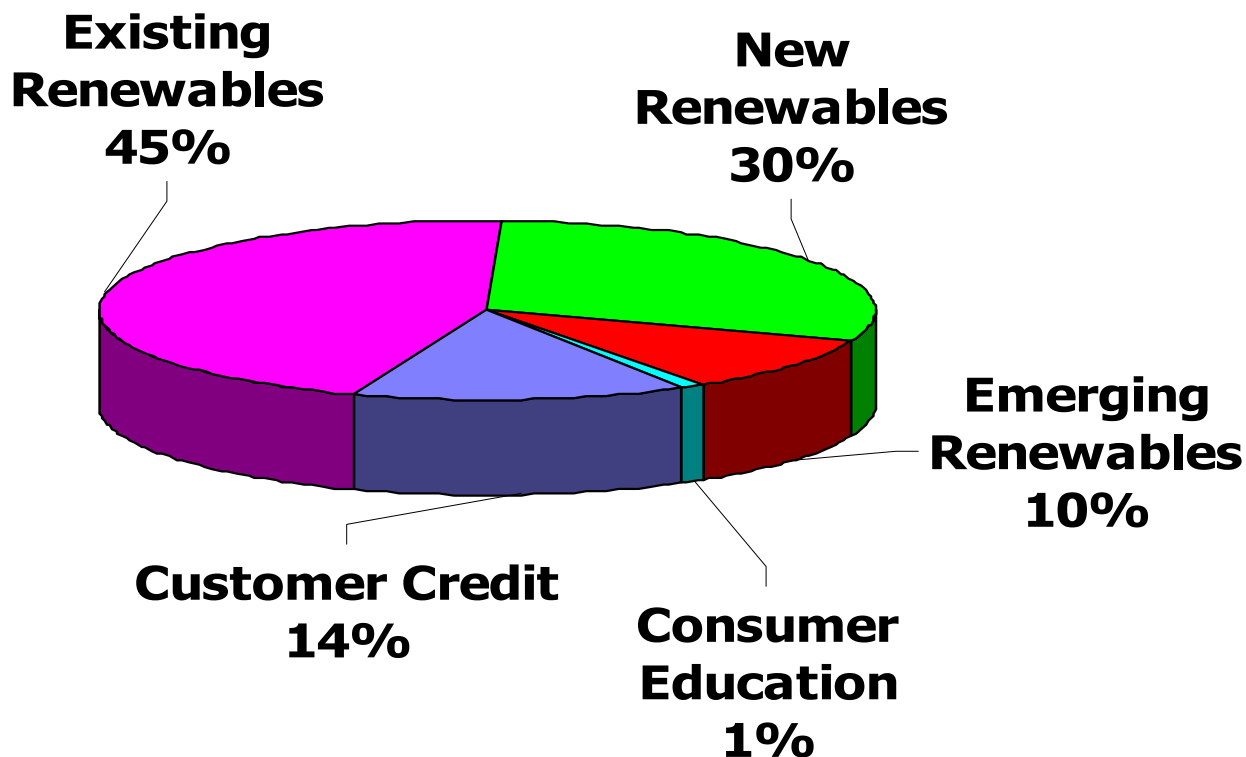
Limit assistance to those already market competitive



Renewable Energy Program

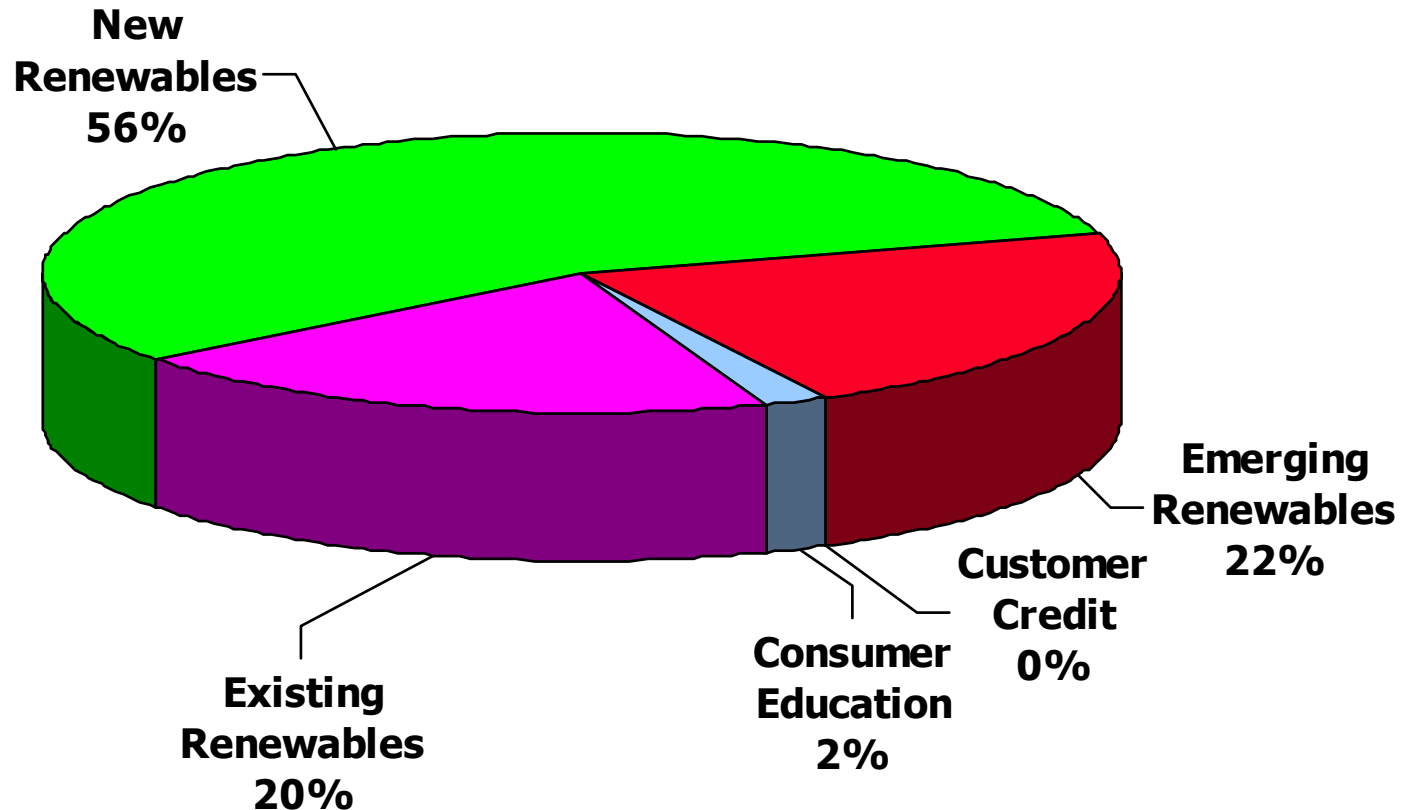
\$540 Million Initial Funding Allocation

1998 - 2002



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Renewable Energy Program \$675 Million Funding Allocations 2002 - 2007



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Renewable Energy Program Results

- So far.....



Existing Renewable Resources

- Provided funding to 275 existing renewable generating facilities totaling 4,400 MW of capacity
- Provided over \$173million in funding support
- Wind projects totaling more than 200 MW have re-powered with support from the Existing Account
- More than 100 MW of previously shut-down biomass capacity has returned to service



New Renewable Resources

- 1.3 GW (71 projects) of new renewable capacity have received conditional funding awards in three competitive auctions
- 329 MW (41 projects) have been completed and are producing electricity
- \$27 million in incentive payments have supported more than 2,300 GWhs of new renewable generation



Customer Credit

- Supported nearly 5 million MWhs of renewable generation
- In May 2000, the height of customer credit activity, about 216,000 customers received customer credits
- New direct access contracts suspended in Sept. '01
- Nearly 100% of residential customers were buying renewables and participating in the customer credit at the peak of the direct access market.



Consumer Education

- Two statewide public awareness campaigns
- Participation in tradeshow and events throughout CA
- Brochures and fact sheets on renewable energy
- Consumer tips and guides to installing photovoltaic and small wind systems on homes & businesses
- 20 renewable energy grant projects leverage over 100% in additional funds through match funding



Emerging Renewable Resources

- Over 5,500 completed projects total 21 MW capacity from solar photovoltaic, small wind, and fuel cell systems installed on residential and commercial sites
- Over 2,000 systems totaling 9 MW of capacity are in development and have reserved over \$36 million
- Over \$84 million in rebates has been paid for completed systems



Emerging Renewables Program

- Typical prices and energy production
- Applications received
- Systems installed
- Funding
- System prices



Typical System Prices and Energy Production

Technology Type	Typical Energy Production (kW h/year)	Typical Installed System Prices ¹
Photovoltaic Systems ²		
1 kW	1,200 to 1,400	\$7,000-12,000
2 kW	2,410 to 2,810	\$12,000-20,000
10 kW	12,050 to 14,050	\$60,000-90,000
Wind Energy Systems ³		
3 kW	4,990 to 8,500	\$12,000-18,000
10 kW	8,400 to 16,440	\$30,000-50,000

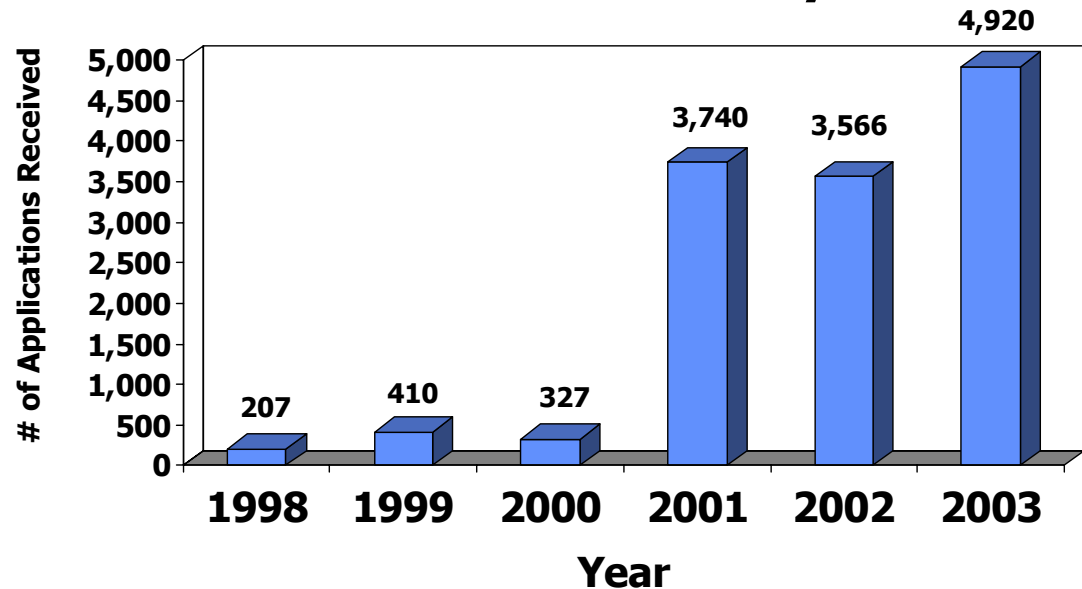
1. 2002 Prices. 2. STC kW*(5.5hrs/d)*(365d/yr)*(.6 or .7 discount factor). 3. Wind calculations based on wind speeds of 11 and 14 mph.



Applications Received by Emerging Renewables Program

The number of applications received by the ERP indicates growing demand for systems. 2003 already higher than any prior full year!

Increased Activity



PV Systems Installed through the Emerging Renewables Program

<i>Year</i>	<i>Number of Systems</i>	<i>kW</i>	<i>Amount Paid</i> <i>(millions)</i>
1999	180	619	\$1.8
2000	215	726	\$2.1
2001	1,238	4,036	\$16.3
2002	2,247	8,172	\$35.5
2003	1,388	6,097	\$25.5
Grand Total	5,268	19,650	\$81.2



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Small Wind Systems Installed through the Emerging Renewables Program

<i>Year</i>	<i>Number of Systems</i>	<i>kW</i>	<i>Amount Paid</i>
1999	15	41	\$108,700
2000	20	76	\$165,200
2001	55	259	\$569,900
2002	84	327	\$881,300
2003	37	255	\$649,700
Grand Total	211	958	\$2,374,800



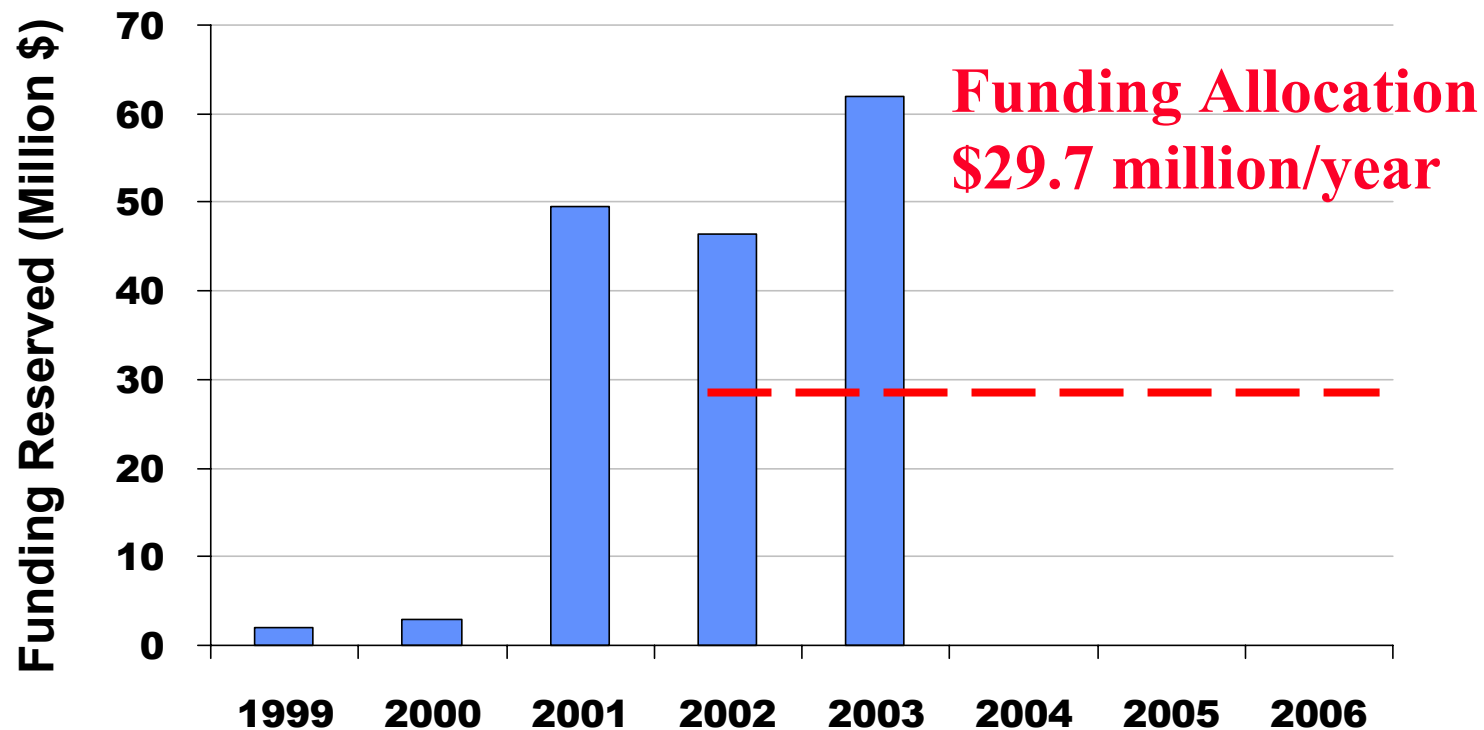
Renewable Energy Systems Installed Each Year

Year	Number of Systems	Capacity (kW)
1998	41	181
1999	197	1,060
2000	235	802
2001	1,293	4,296
2002	2,331	8,499
2003*	1,406	6,226
Total	5,503	21,063

***As of July 26, 2003**



Funds Allocated & Reserved

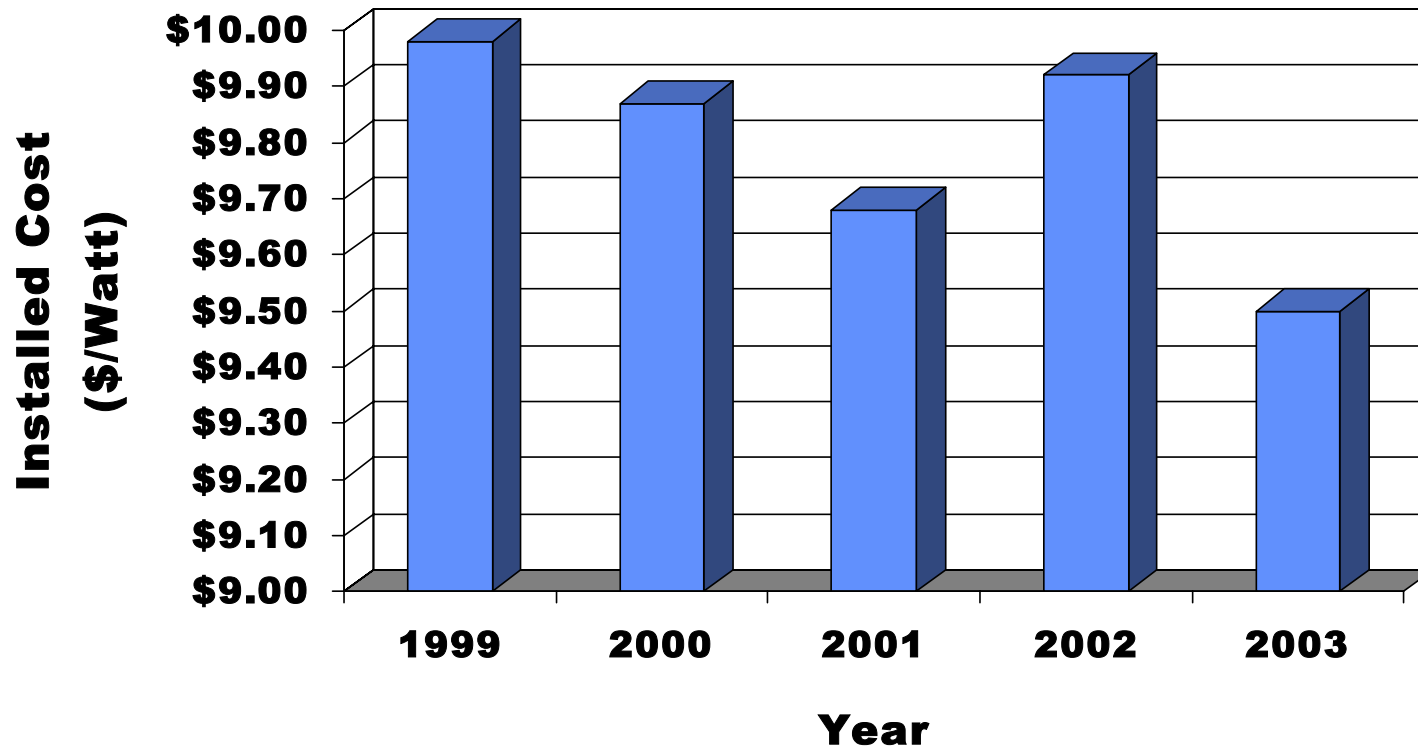


Note: 2003 is through July 26.



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Median Price for Small PV Systems



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Self Generation Program

- Administered by Investor Owned Utilities since 2001
- \$125 million annual budget allocation
- Program currently authorized through 2004
- Technologies include PV, wind, fuel cells, microturbines, small gas turbines, internal combustion engines
- \$4.50/watt (up to 50% system cost) for PV, wind and renewably fueled fuel cells (30 kW to 1 MW)
- \$2.50/watt (up to 40% system cost) for nonrenewable fuel cells and waste heat recovery (no minimum system size)
- \$1.00/watt (up to 30% system cost) for remainder



Self Generation Program Contacts

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